AMENDMENTS TO THE CLAIMS:

Listing of claims

Claim 1 (Previously presented): A transducer element for a torque or force transducer comprising a member having a structure which extends generally radially of an axis to transmit a stress between a radially inner region of the structure and a radially outer region, and at least one region of permanent magnetisation that is predominantly axially magnetized and disposed between said inner and outer regions to be responsive to the transmitted stress and emanate a stress-dependent magnetic field.

Claim 2 (Original): A transducer element as claimed in claim 1 in which there are two magnetised regions, a radially inner region and a radially outer region between which a stress-dependent field is established.

Claim 3 (Previously presented): A transducer element as claimed in claim 1 in which the or each region of permanent magnetisation is arcuate with respect to said axis.

Claim 4 (Previously presented): A transducer element as claimed in claim 1 in which the or each region of permanent magnetisation is an interrupted annulus.

Claim 5 (Previously presented) A transducer element as claimed in claim 1 in which the or each region of permanent magnetisation is annular.

Claim 6 (Previously presented): A transducer element as claimed in claim 1 in which said structure has a generally radially extending surface to which the or each magnetised region extends.

Claim 7 (Previously presented): A transducer element as claimed in claim 1 in which said member has a generally disc structure.

Claim 8 (Previously presented): A transducer element as claimed in claim 1 in which there are two regions of permanent magnetisation; each being magnetised in a substantially axial direction and wherein the polarities of magnetisation of the two regions are opposite.

Claim 9 (Previously presented): A transducer element as claimed in claim 7 in which said structure has two radially-extending surfaces to which the or each region of permanent magnetisation extends and further comprising means located at one of sad two surfaces to close a flux path between the two regions.

Claim 10 (Previously presented): A transducer element as claimed in claim 1 in which there are two regions of permanent magnetisation radially-spaced apart and having independent closed magnetic circuits of opposite polarity.

Claim 11 (Previously presented): A transducer element as claimed in claim 9 in which said member is formed of a material, said transducer element having a flux path linking said regions, said flux path being closed within the material of said member.

Claim 12. (Cancelled).

Claim 13 (Previously presented): A transducer element for a torque or force transducer comprising a member having a structure which extends generally radially of an axis to transmit a stress between a radially inner region of the structure and a radially outer region, and a single region of permanent magnetisation which extends obliquely to said axis and is disposed between said inner and outer regions to be responsive to the transmitted stress and emanate a stress-dependent magnetic field.

Claim 14 (Previously presented): A transducer element as claimed in claim 13 in which said structure has a generally disc structure and includes a step portion in which said single region is provided.

Claim 15 (Previously presented): A stress sensing transducer system comprising a transducer element which is as claimed in claim 1 and which is subject to stress generated between said radially inner and outer regions of said structure through said at least one magnetised region to emanate a torque-dependent magnetic field, and a sensor system comprising one or more magnetic field sensors responsive to said stress-dependent magnetic field to provide a signal representing the stress generated between one and the other of said radially inner and outer regions.

Claim 16 (Previously presented): A torque sensing transducer system comprising a transducer element which is as claimed in claim 1 and which has a torque transmission path extending from one to the other of said radially inner and outer regions of said structure through said at least one magnetised region to emanate a torque-dependent magnetic field, and a sensor system comprising one or more magnetic field sensors responsive to said stress-dependent magnetic field to provide a signal representing the stress transmitted between one and the other of said radially inner and outer regions.

Claim 17 (Previously presented): A transducer as claimed in claim 16 in which said member is adapted as a torque transmitting part capable of transmitting a rotational drive applied to said inner region of said structure to a load applied to said outer region thereof or vice versa.

Claim 18 (Previously presented): A transducer as claimed in claim 15 in which said member is disc-shaped.

Claim 19 (Previously presented): A transducer system as claimed in claim 15 in which said one or more magnetic field sensors is disposed and oriented to detect a circumferential magnetic field component and provide a signal representing same.

Claims 20-21. (Cancelled)

Claim 22 (Previously presented): A torque or force transducer element comprising

a member adapted to transmit torque or force applied along, on or about an axis extending through the member to a portion of the member spaced from said axis, or vice versa,

said member having a surface transverse to said axis,

a first, outer, region located between said axis and said portion and extending to said surface;

a second, inner, region located between said axis and said outer region and extending to said surface; and

first and second annular regions that are predominantly axially magnetised and having independent closed magnetic circuits with opposite polarity to generate a magnetic field component which is a function of said torque or force.

Claim 23 (Original): A transducer element as claimed in claim 22 in which said first and second regions are annular and encircle said axis, or at least one of the annular regions is an interrupted annulus, or said first and second regions are arcuate with respect to said axis.

Claim 24 (Previously presented): A transducer element as claimed in claim 22 wherein said first and second predominantly axially magnetised regions develop a radial magnetic field component extending there between at said surface and a circumferential magnetic field component at said surface that is a function of torque.

Claim 25. (Cancelled)

Claim 26 (Previously presented): A torque or force transducer assembly comprising

first and second members coaxially disposed,

said first member being of greater diameter than said second member,

a disc member extending generally radially of said axis and connecting said first member to said second member for transmitting force from one member to the other, said disc member comprising two magnetized regions that are at least arcuate or part annular,

said magnetized regions having a predominantly axial magnetization such that the

regions cooperate to generate a magnetic field component that is a function of a stress established in transmitting a load between said first and second members.

Claim 27 (Original): A transducer assembly as claimed in claim 26 in which said assembly is adapted to transmit torque from one of said members to the other.

Claim 28. (Canceled)

Claim 29 (Previously presented): A transducer assembly as claimed in claim 26 in which said first and second members are disposed to cause flexing of said disc member in response to a relative displacement of said first and second members away from axial alignment.

Claim 30 (Previously presented): A transducer assembly as claimed in claim 26 in which said first and second members are disposed to cause flexing of said disc member in response a relative displacement of said first and second members away from axial alignment.